Bjarne Stroustrup

Written by

Matthew Armstrong

Bjarne Stroustrup is best known for being the designer and original implementer of C++ and the bestselling author of:

* A Tour of C++
* Programming – Principles and Practice using C++
* The C++ Programming Language
* The Design and Evolution of C++

As well as many other well published titles.

Bjarne Stroustrup is the designer and main creator of C++. C++ is, mainly because of its use of affordable abstraction techniques and it being very manageable for mainstream projects, one of the most widely used programming languages. Examples of Stroustrup demonstrating the efficiency of C++ as a tool is through his work on general systems programming, switching, simulation, graphics, user-interfaces, embedded systems, financial systems, games, and scientific computation. C++ has been among the most widely used programming languages for the last two decades. The C++ users’ community is estimated (2015) to be around 4.4 million. The influence of C++ on the programming world is quite clear to see as the ideas it popularized are clearly visible far beyond the C++ community. C, C#, Java, Fortran and other languages now provide features pioneered for mainstream use by C++. He has been engaged recently in a new project to give meaning to C++ as a completely resource and type safe language and help users to use it as such in today’s modern world.

His book “The C++ Programming Language”, which has been translated into at least 19 languages, is the most widely read C++ programming book in the genre. A later book, “The Design and Evolution of C++” broke new ground in the description of the way a programming language was shaped by ideas, ideals, problems, and practical constraints. His textbook “Programming – principles and practice using C++”, has been translated into 10 languages currently with intent to translate to more. His most recent book, “A Tour Of C++” gives experienced programmers an overview of the C++ language and its standard library’s. In addition to his ten books, Stroustrup has published Along with his many books written, Stroustrup has also published many articles and educational papers alongside his books to further provide information on the in-depth nature of the C++ language. In the year 1989, he took an active role in the creation of the ANSI/ISO standard for C++ and is still to this day working on the maintenance and revision of that standard.

Throughout Stroustrup’s life he has obtained many honours including:

* 2017: The Faraday Medal from the IET
* 2017: Elected Honorary Fellow of Cambridge university
* 2015: Fellow of the Computer History Museum
* 2015:  The Dahl-Nygaard senior prize
* 2013: Electronic Design Hall of Fame.
* 2013: Honorary Doctor of Computer Science from ITMO
* 2013: The Golden Abacus Award from Upsilon Pi Epsilon.
* 2018: The John Scott Award from The Franklin Institute and the City Council of Philadelphia.
* 2018: The Computer pioneer award.
* 2018: The Charles Stark Draper award

Distributed systems, design, programming techniques, software development tools, and programming languages are a few of his studying interest at the current time. Stroustrup is currently involved in the ANSI/ISO standardization of C++. Dr. Stroustrup is a Managing Director in the technology division of Morgan Stanley in New York City and a Visiting Professor in Computer Science at Columbia University. He is an advisor to the Norwegian start-up ‘includeOS’. ‘IncludeOS’ is an open-source minimal unikernel developed by Stroustrup in the C++ language. Stroustrup is a Managing Director in the technology division of Morgan Stanley in New York City, a Visiting Professor in Computer Science at Columbia University, and an honorary fellow of Cambridge. Stroustrup and his family live in New York City; his daughter is a doctor and his son is a professor in systems biology. Moving to New York was prompted by Stroustrup’s Wife and Stroustrup himself wanting to be nearer to their children and (especially) grandchildren. Stroustrup also wanted to refresh his acquaintance with critical software development. Academic concerns can distract from work aiming squarely at solving industrial problems (e.g., of scale and reliability).

Measurement of the Software Engineering process

Within Software Engineering, measures are used to assess the quality of the engineered product or system and to better understand the models that are created. To improve the software process on a continuous basis, these measures are collected throughout the software development life cycle. Estimation, quality control, productivity assessment and project control throughout a software project are all helped by these measurements. Measurement is used by software engineers to gain insight into the design and development of the work products as well as assisting in strategic decision-making as a project proceeds. Software measurements are split into two categories:

Direct measures

These include software processes like cost and effort applied and products like lines of code produced, execution speed, and other defects that have been reported.

Indirect measures

These include products like the functionality, quality, complexity, reliability, maintainability and many more

Software measurement is considered as a management tool which helps the project manager and the entire software team to make decisions that lead to successful completion of the project. The Measurement process is characterized by a set of five values, which are listed below.

* **Formulation:** This performs measurement and develops appropriate metric for software under consideration.
* **Collection:** This collects data to derive the formulated metrics.
* **Analysis:** This calculates metrics and the use of mathematical tools.
* **Interpretation:** This analyses the metrics to attain insight into the quality of representation.
* **Feedback:** This communicates recommendation derived from product metrics to the software team.

Collection and analysis activities are what drive the measurement process. To effectively perform these activities, it is recommended to automate data collection and analysis, establish guidelines and recommendations for each metric, and use statistical techniques to interrelate external quality features and internal product attributes.